1. EXECUTIVE SUMMARY

VIM Recycling, Inc. (VIM) and the Indiana Department of Environmental Management (IDEM) entered into an agreement to conduct an Experimental Demonstration Project (DEMO Project) from December 26, 2007 for a time period of 6-months later. A copy of the letter is included in Appendix D. The project was initiated to determine if the mixture (approximately even amounts) of ground-up "C-material", gypsum, Grade A compost along with top soil and gypsum paper was suitable to be applied on the land and to meet the requirements' for a Marketing and Distribution Permit obtained through the IDEM Office of Land Quality. The mixture was analyzed three separate times throughout the term of the DEMO Project. The parameters included 18 metals, VOC, and SVOC contaminants indicated in the letter of September 10, 2007. The parameters analyzed were determined by IDEM. The parameters are listed in Table 1 below. The results from each sampling event indicated each parameter was well below the established DEMO Project limits determined by IDEM and meet the land application requirements for a Marketing and Distribution Permit. Sampling was performed by VIM on 4/3/08 and 6/17/08 and a copy of the results is located in Appendix B. The results passed the testing parameter limits for the DEMO Project and VIM hand delivered an application for a Marketing and Distribution Permit (M&D) on June 27, 2008.

2. MATERIAL PROCESSING DESCRIPTION

The end product produced was made from a mixture (approximately even amounts) of ground-up "C-material", gypsum, Grade A compost along with top soil and gypsum paper. The initial mixture composition submitted was 1/3 gypsum, 1/3 Grade A compost and 1/3 "C" material. This was never the formula though and was a miscommunication to IDEM. The gypsum is brought to the Elkhart site from the Goshen VIM site which currently has an M&D permit for this material. The Grade A Compost is brought in from the Elkhart City Landfill which also has an M&D permit. The "C" material is from the VIM facility and is ground-up onsite. The soil is on-site at the VIM facility. These materials are mixed together and stockpiled in windrows to allow for natural breakdown to begin.

The equipment used to chip-up the "C" material was an 800 hp wood chipper. Once the material was processed, it was combined with the gypsum and gypsum paper, soil and Grade A compost using a combination of a screen processor and a front end loader. These materials were mixed together in windrows and allowed to "cook" for at least 6-weeks. During this time, the windrows were overturned as needed to allow for natural breakdown of the material. Product was screened to a minus 3/8" and then available for sale. All product over 3/8" was put back into the windrows for additional composting. Once completed the finished product is ready for sale. The equipment used for the chipping, screening and turning of the piles was satisfactory for the intended purpose.

The first sample was collected less than two weeks after the DEMO Project pile was mixed. The sample conducted by IDEM was collected approximately 6 weeks after the

initial mixing of the DEMO Project pile. The final sample collected by VIM was collected on 6/17/08, approximately 11 weeks after the initial mixing of the DEMO Project pile

3. SAMPLING PROCESS

A total of 14 individual grab samples were taken from the DEMO Project material. Each sample was grabbed from a depth of 3 inches to approximately 6 inches from the surface of the stockpile. The material sampled appeared homogenous in color, consistency and texture. Each sample was composited into a pile, screened using a 3/8" screen and then the aggregate material was mixed one more time and put into 4 ounce sample jars obtained from the laboratory for analysis.

4. RESULTS

The results of the 3 sampling events are described below in Table 1. The results are below the Table 3 Pollutant Concentrations from 327 IAC 6.1-4-9. Table 3 in this subsection lists the pollutant concentrations for biosolid or industrial waste product to be applied to the land in accordance with a nonsite-specific permit under section 5 of this rule, a hybrid permit under section 5.5 of this rule, or a marketing and distribution program permit under 327 IAC 6.1-5. The results indicate a Marketing and Distribution Permit can be obtained based on the results of the samples.

Table 1
DEMO Project Concentration Limits

	COC[1]	Table 3 Pollutant Concentrations from 327 IAC 6.1-4-9	Sample #1 4/3/08	Sample #2 By IDEM	Sample #3 6/17/08	Maximum Detection Limits mg/kg Dry Weight Basis
	Metals (SW846 6010)	mg/kg	mg/kg dry	mg/kg dry	mg/kg dry	
1	Arsenic	41	2.8	9.0	6.2	2
2	Cadmium	39	3.1	7.3	0.22	10
3	Copper	1,500	32	23	30	NA
4	Lead	300	15	10	12	10
5	Mercury	17	ND	ND	ND	2
6	Nickel	420	11	4.2	7.5	10
7	Selenium	100	ND	ND	ND	2
8	Zinc	2800	96	64	64	NA
9	Molybdenum	75	ND	ND	ND	10
10	PCBs	49	ND	ND	ND	

Table 1
DEMO Project Concentration Limits (cont.)

	COC[1]	Table 3 Pollutant Concentrations from 327 IAC 6.1-4-9	Sample #1 4/3/08	Sample #2 By IDEM	Sample #3 6/17/08	Maximum Detection Limits mg/kg Dry Weight Basis
	VOC/SVOC (SW846 8260 and 8270)					
11	Barium	1600	49	71	52	
12	Chromium	10,000	11	8.0	8.8	
13	Vinyl chloride	0.013	ND		ND	
14	Cyclohexane	69	ND		ND	
15	Diethylphalate	450	ND		ND	
16	Toluene	12	ND	0.0089	ND	
17	Methylethyl ketone	35	ND		ND	
18	Phenols	60	ND	8.1	ND	

1 = Chemical of Concern

A sample of the existing berm was collected prior to the discussions of a DEMO Project to determine if the material would meet the limits for a Marketing and Distribution permit. This sample was collected on 7/16/07 and identified as #2 Organic Compost Mix. A copy of the laboratory results is included as Appendix C. These initial results indicated that the existing berm material, which is the same mixture of as the DEMO Project pile, passed the Marketing and Distribution Permit limits.

Table 2
Existing Berm Sample Results

Sample	COC	Result Mg/kg dry	
#2 Organic compost Mix Collected 7/16/07	Percent Total Solids	85 %	
	Arsenic (As)	10	
	Cadmium (Cd)	0.27	
	Copper (Cu)	110	
	Lead (Pb)	24	
	Mercury (Hg)	0.24	
	Molybdenum (Mo)	1.1	
	Nickel (Ni)	32	
	Selenium (Se)	ND	
	Zinc (Zn)	180	
	Total N (TN)	4800	
	Ammonium N (NH4-N)	24	
	Nitrate N (NO3-N)	120	
	Phosphorus (P)	3100	
	Potassium (K)	570	
	PCB's	ND	